APPENDIX A
ADDITIONAL DATA SUMMARY

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Bird Monitoring Data

Data Sources

Data were obtained from Lockwood Green Technologies and hand entry from the ED-1 MAP reports. Lockwood Green data were received as Excel spreadsheets. These data included bird population survey counts for the periphery and floodplain routes from 1996 to 1999, excluding 1998. Data were hand entered into Excel spreadsheets from the 2000 MAP report.

Data Processing

SAS data analysis software was used to summarize and graph the data. The total number of birds was summed across each location, year, season and sampling route (Table 1). The number of species identified was also calculated across each location, year, season and sampling route (Table 1). These data for each location, season, and route were plotted by year to allow for a visual examination of temporal trends in the data (Figures 1 to 4).

Summary statistics were calculated for the total number of birds and the number of species for each season and sampling route (Tables 3 and 4). The summary statistics include the total number of samples, mean, standard deviation, coefficient of variation, maximum, minimum, and the probability for normality test. The coefficient of variation (CV) is the standard deviation divided by the mean and taken as a percent. The CV is a measure of the variability of the measurement. The probability for normality test is the probability for the Shapiro-Wilk test for determining if the data are different from a normal distribution. Data with probability values less than 0.05 would be considered significantly different from normal.

A simple linear regression analysis was performed for total number of birds versus year and the total number of species versus year to look for a simple linear increase or decrease in the ecological measurements over time. The regression tables contain the parameter estimates for the slope, standard error, probability, R-square, and 95% lower (LCL) and upper (UCL) confidence limits on the slope. Probability values less than the alpha level chosen indicate a statistically significant slope and, therefore, a statistically significant trend. The R-square value indicates how well the linear regression fits the measurements. R-square values close to 1.0 indicate a very good fit. R-square values close to zero indicate a poor fit.

Plots, summary statistics, and regression analyses were also computed for two subsets of the bird species: birds of conservation concern and birds on the PIF National Watch List (Figures 5 to 12 and Tables 6 to 12).

References

SAS®, 2001. Copyright (c) 1999-2001 by SAS Institute Inc., Cary, NC, USA.

Proprietary Software Release 8.2 (TS2M0)

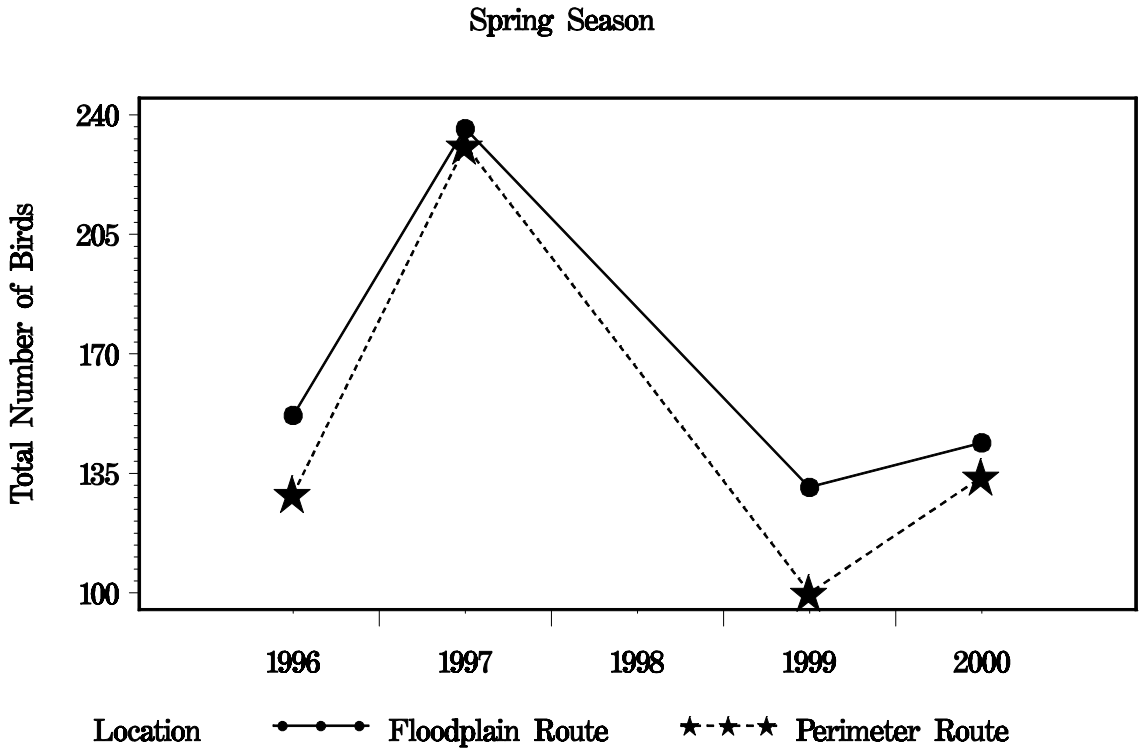

Figure 1. Number of birds counted at ED-1 during the Spring.

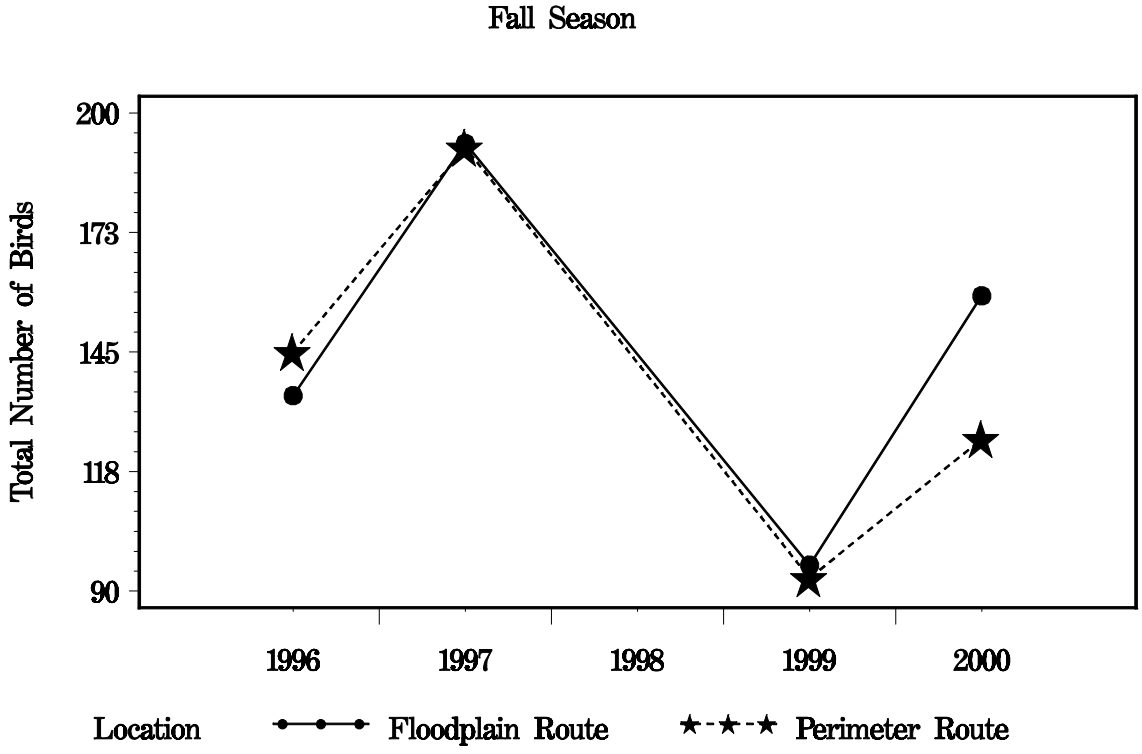

Figure 2. Number of birds counted at ED-1 during the Fall.

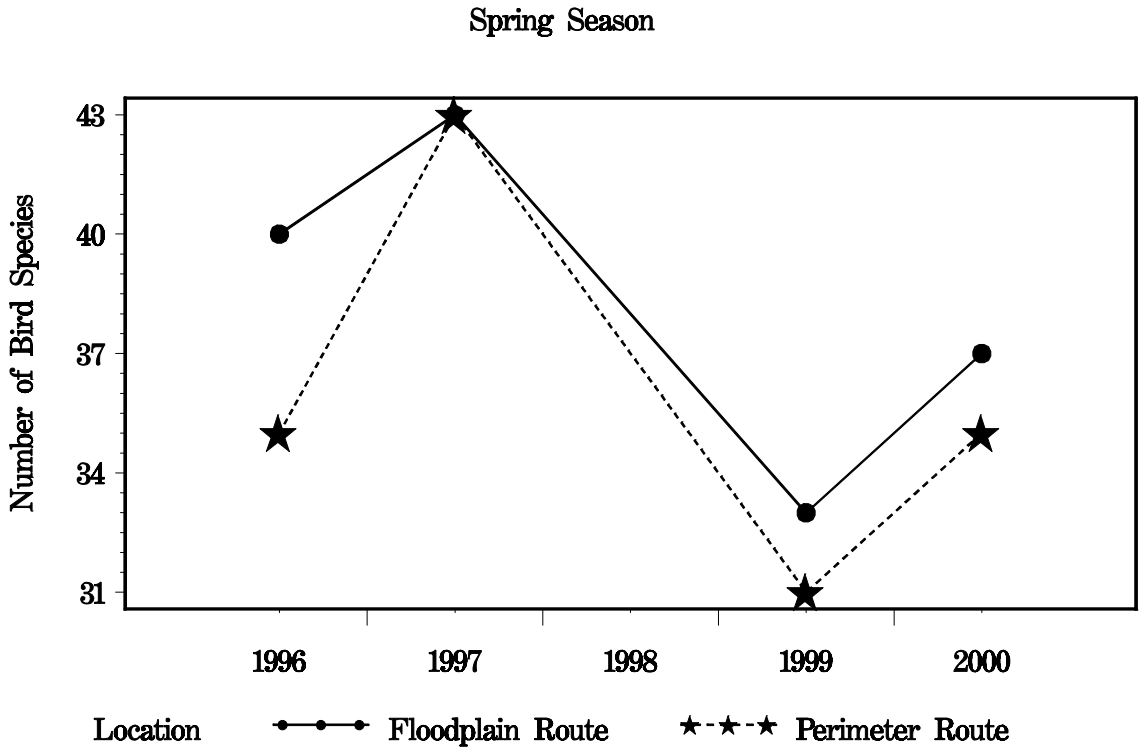

Figure 3. Number of bird species counted at ED-1 during the Spring.

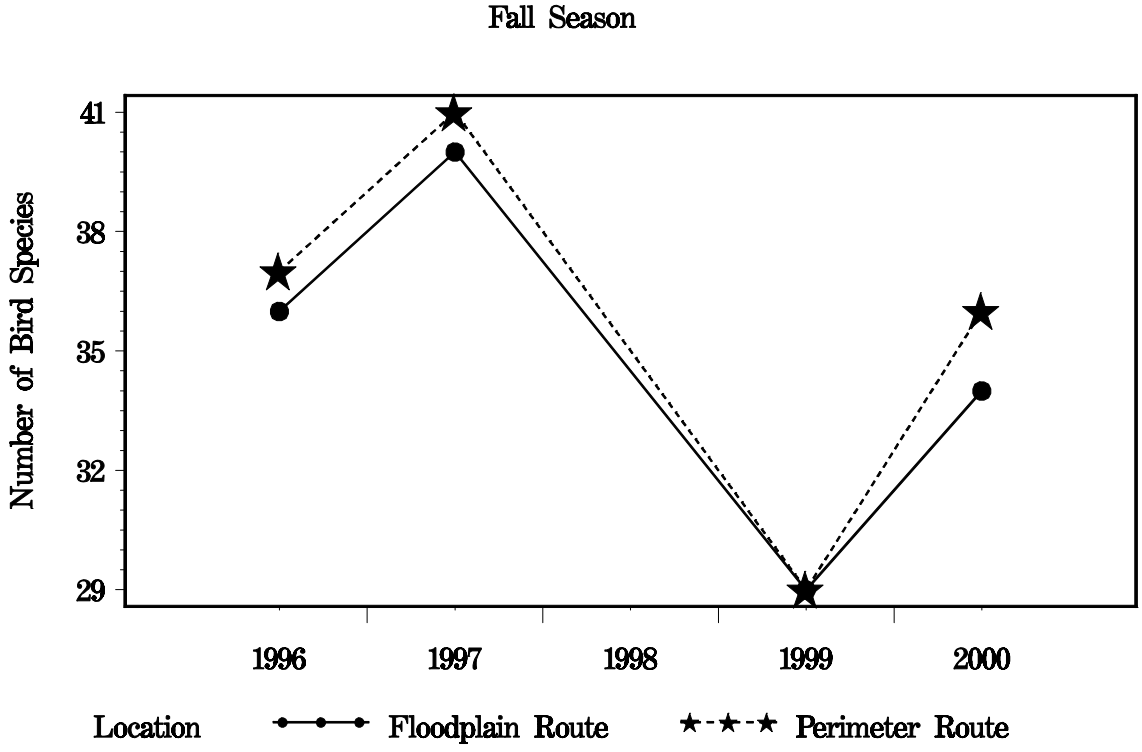

Figure 4 Number of bird species counted at ED-1 during the Fall.

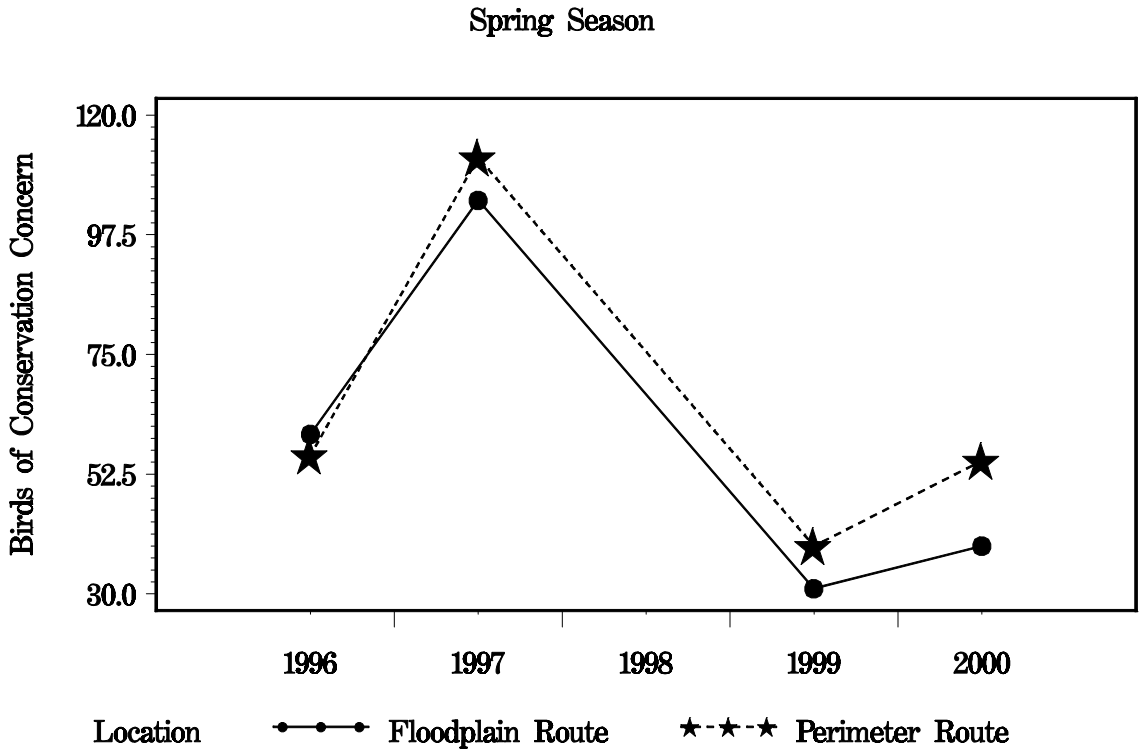

Figure 5. Number of birds counted of conservation concern at ED-1 in Spring.

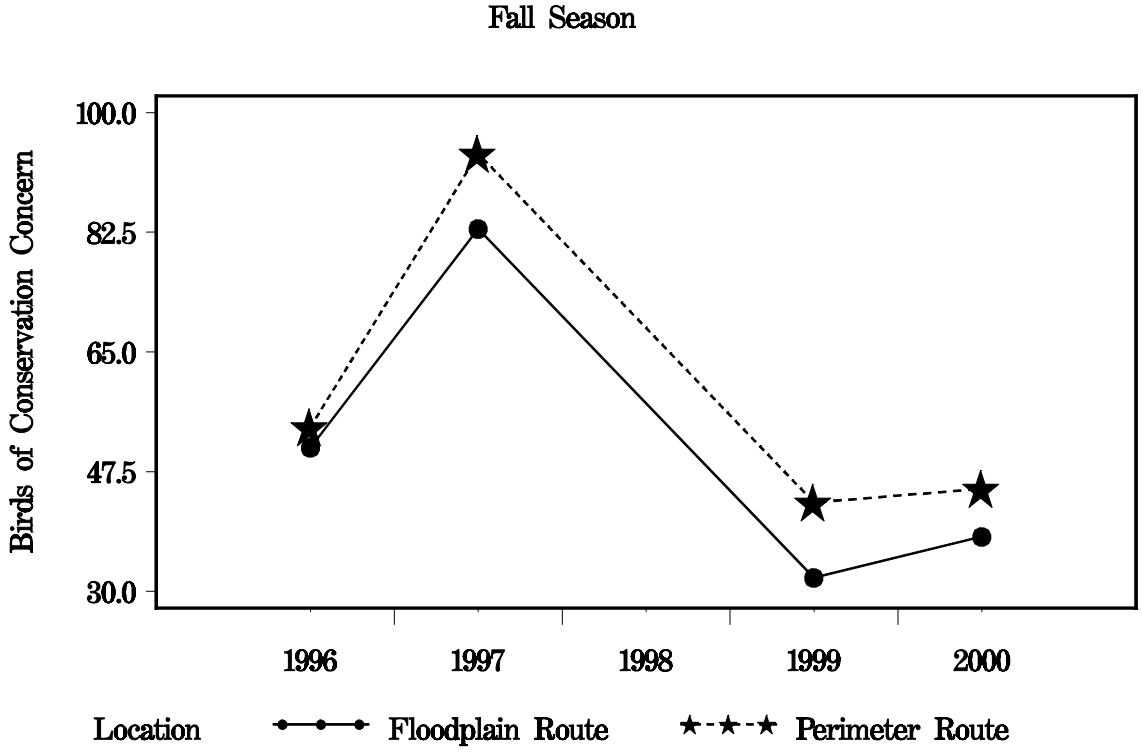

Figure 6. Number of birds counted of conservation concern at ED-1 in Fall.

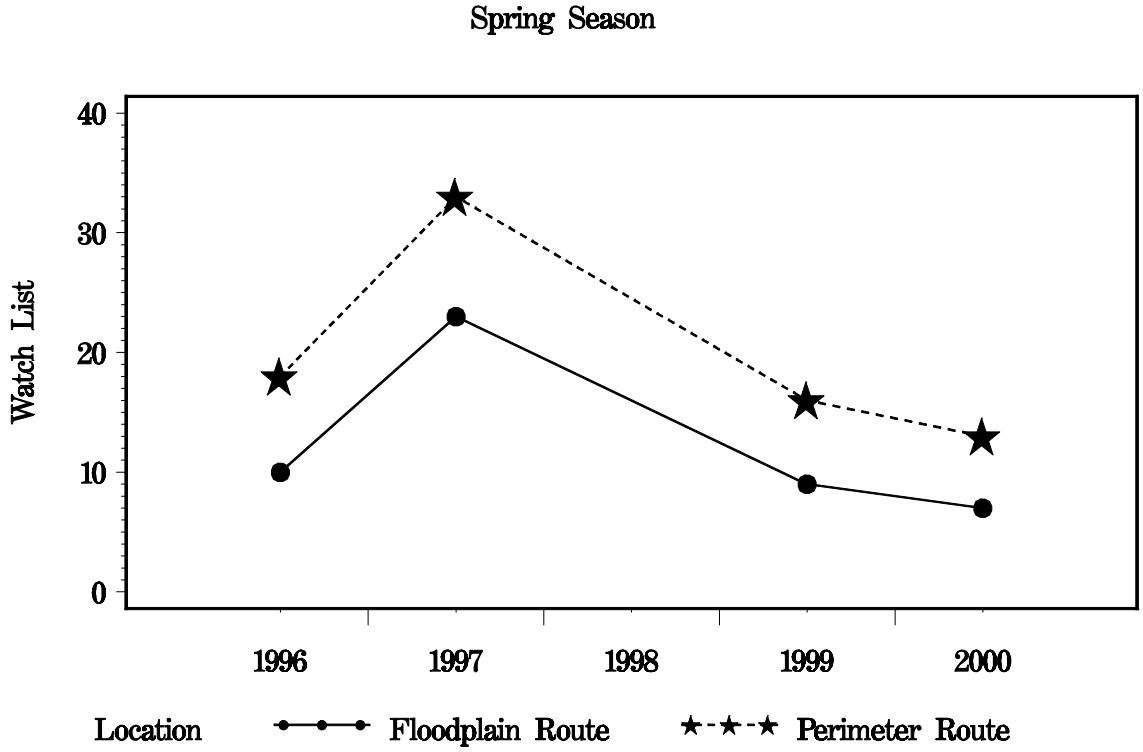

Figure 7. Number of birds counted on PIF Watch List at ED-1 in Spring.

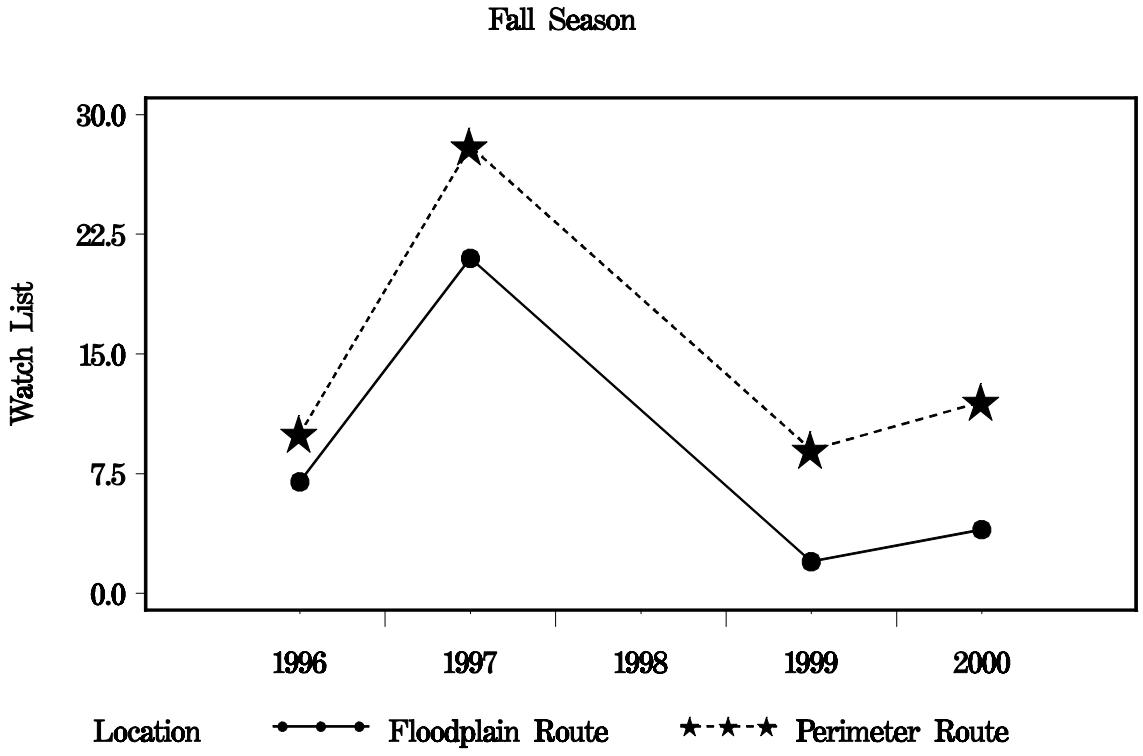

Figure 8. Number of birds counted on PIF Watch List at ED-1 in Fall.

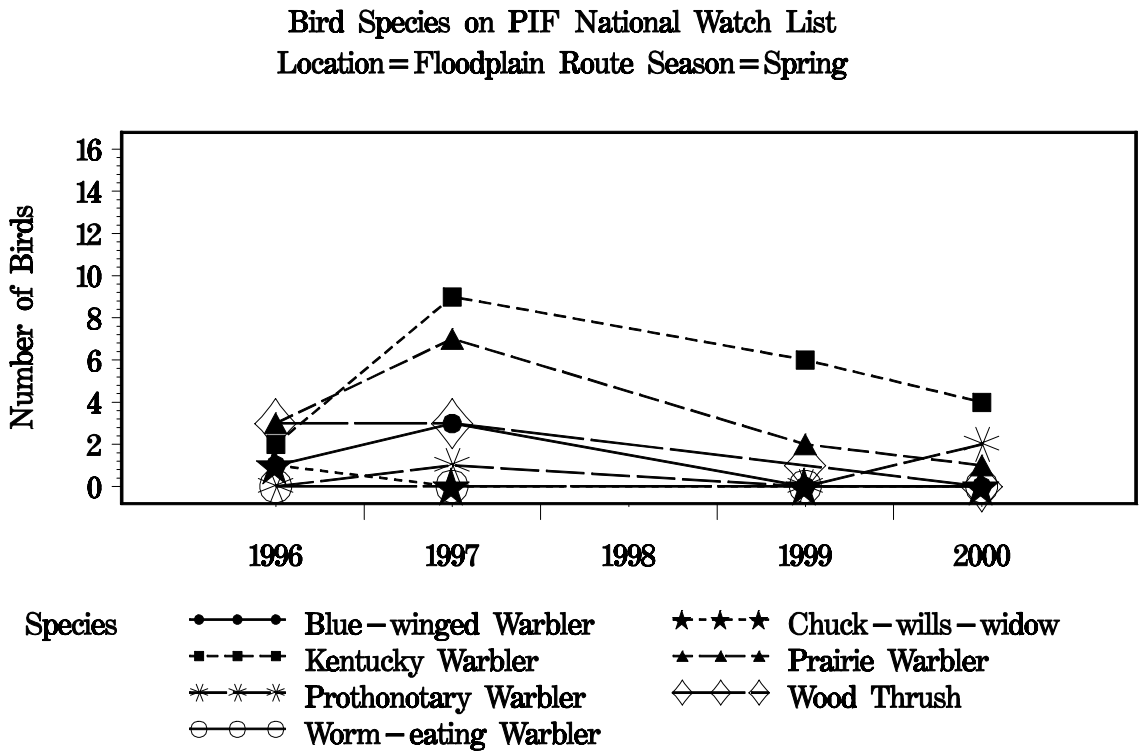

Figure 9. Number of birds counted on PIF Watch List at ED-1 in Spring by species on floodplain route.

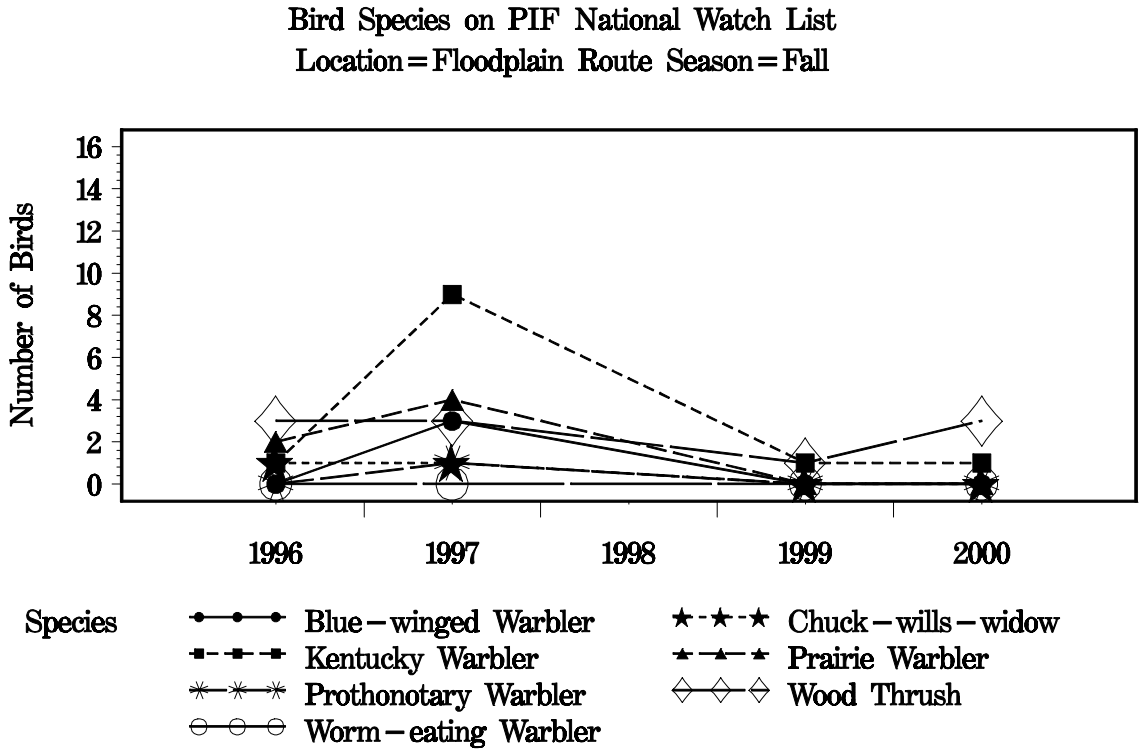

Figure 10. Number of birds counted on PIF Watch List at ED-1 in Fall by species on floodplain route.

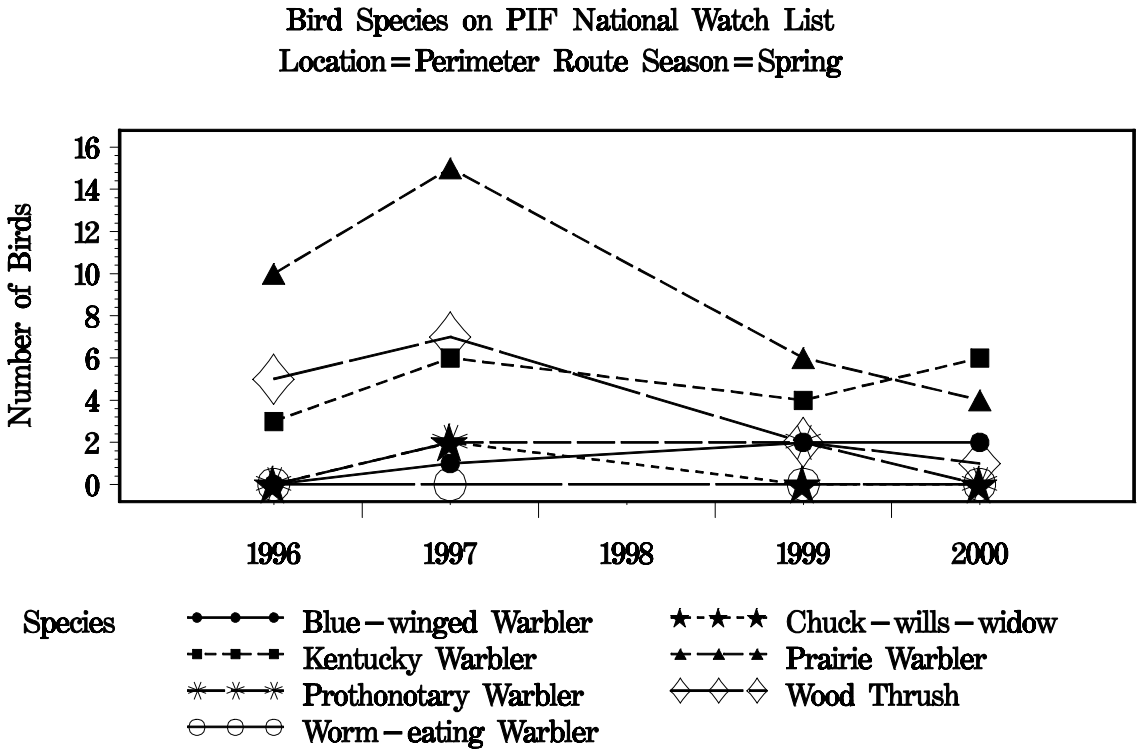

Figure 11. Number of birds counted on PIF Watch List at ED-1 in Spring by species on perimeter route.

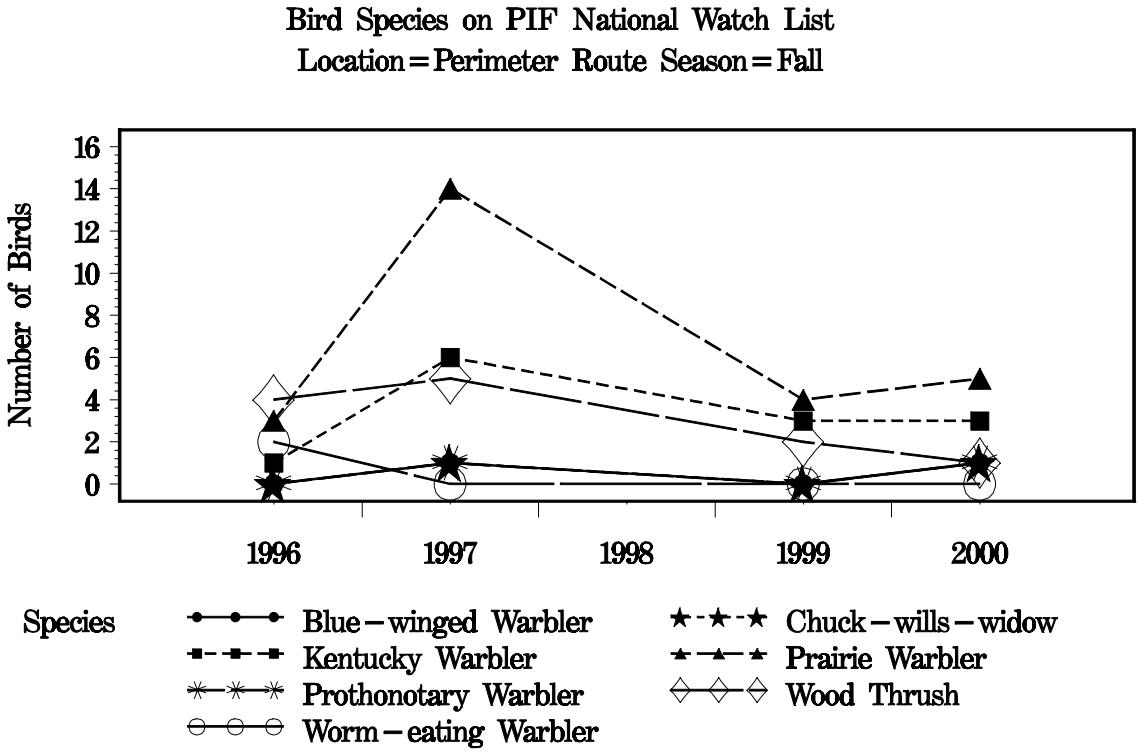

Figure 12. Number of birds counted on PIF Watch List at ED-1 in Fall by species on perimeter route.

Table 1. Total Numbers of Birds and Species by Locations, Seasons, and Year 1996-2000

Location	Year	Season	Total Birds	Total Species
Floodplain Route	1996	Spring	152	40
Floodplain Route	1997	Spring	236	43
Floodplain Route	1999	Spring	131	33
Floodplain Route	2000	Spring	144	37
Floodplain Route	1996	Fall	135	36
Floodplain Route	1997	Fall	193	40
Floodplain Route	1999	Fall	96	29
Floodplain Route	2000	Fall	158	34
Perimeter Route	1996	Spring	129	35
Perimeter Route	1997	Spring	231	43
Perimeter Route	1999	Spring	100	31
Perimeter Route	2000	Spring	134	35
Perimeter Route	1996	Fall	145	37
Perimeter Route	1997	Fall	192	41
Perimeter Route	1999	Fall	93	29
Perimeter Route	2000	Fall	125	36

Table 2. Summary Statistics for Total Birds 1996-2000

Season	Location	Total Number of Samples	Mean	Standard deviation	Coefficient of Variation	Maximum	Minimum	Probability for normality
Spring	Floodplain Route	4	165.75	47.6261	28.7337	236	131	0.79375
Spring	Perimeter Route	4	148.50	57.0058	38.3878	231	100	0.84687
Fall	Floodplain Route	4	145.50	40.7145	27.9824	193	96	0.99917
Fall	Perimeter Route	4	138.75	41.4598	29.8810	192	93	0.98766

Table 3. Summary Statistics for Total Species 1996-2000

Season	Location	Total number of Samples	Mean	Standard deviation	Coefficient of Variation	Maximum	Minimum	Probability for normality
Spring	Floodplain Route	4	38.25	4.27200	11.1686	43	33	0.99253
Spring	Perimeter Route	4	36.00	5.03322	13.9812	43	31	0.89495
Fall	Floodplain Route	4	34.75	4.57347	13.1611	40	29	0.99271
Fall	Perimeter Route	4	35.75	4.99166	13.9627	41	29	0.94698

Table 4. Summary Regression Table for Total Birds 1996-2000

Location	Season	Parameter Estimate	Standard Error	Pr > |t|	R-Square	LCL	UCL
Floodplain Route	Spring	-12.10000	16.34113	0.5361	0.2152	-82.4102	58.2102
Floodplain Route	Fall	-5.10000	15.35073	0.7713	0.0523	-71.1489	60.9489
Perimeter Route	Spring	-12.10000	20.35301	0.6125	0.1502	-99.6719	75.4719
Perimeter Route	Fall	-13.90000	12.69774	0.3879	0.3747	-68.5339	40.7339

Table 5. Summary Regression Table for Total Species 1996-2000

Location	Season	Parameter Estimate	Standard Error	Pr > |t|	R-Square	LCL	UCL
Floodplain Route	Spring	-1.60000	1.20727	0.3162	0.4676	-6.7945	3.5945
Floodplain Route	Fall	-1.50000	1.41863	0.4012	0.3586	-7.6039	4.6039
Perimeter Route	Spring	-1.20000	1.75499	0.5647	0.1895	-8.7511	6.3511
Perimeter Route	Fall	-1.40000	1.66057	0.4879	0.2622	-8.5449	5.7449

Table 6. Total Number of Birds of Conservation Concern and Total Number Birds on the PIF National Watch List, 1996-2000.

Location	Year	Season	Birds of Conservation Concern	PIF National Watch List
Floodplain Route	1996	Spring	60	10
Floodplain Route	1997	Spring	104	23
Floodplain Route	1999	Spring	31	9
Floodplain Route	2000	Spring	39	7
Floodplain Route	1996	Fall	51	7
Floodplain Route	1997	Fall	83	21
Floodplain Route	1999	Fall	32	2
Floodplain Route	2000	Fall	38	4
Perimeter Route	1996	Spring	56	18
Perimeter Route	1997	Spring	112	33
Perimeter Route	1999	Spring	39	16
Perimeter Route	2000	Spring	55	13
Perimeter Route	1996	Fall	54	10
Perimeter Route	1997	Fall	94	28
Perimeter Route	1999	Fall	43	9
Perimeter Route	2000	Fall	45	12

Table 7. Summary Statistics for Total Birds of Conservation Concern.

Season	Location	Total number of Samples	Mean	Standard deviation	Coefficient of Variation	Maximum	Minimum	Probability for normality
Spring	Floodplain Route	4	58.5	32.7058	55.9073	104	31	0.89740
Spring	Perimeter Route	4	65.5	31.9635	48.7993	112	39	0.82668
Fall	Floodplain Route	4	51.0	22.7596	44.6267	83	32	0.89112
Fall	Perimeter Route	4	59.0	23.8188	40.3708	94	43	0.78479

Table 8. Summary Statistics for Birds on the PIF National Watch List.

Season	Location	Total number of Samples	Mean	Standard deviation	Coefficient of Variation	Maximum	Minimum	Probability for normality
Spring	Floodplain Route	4	12.25	7.27438	59.383	23	7	0.78490
Spring	Perimeter Route	4	20.00	8.90693	44.535	33	13	0.83273
Fall	Floodplain Route	4	8.50	8.58293	100.976	21	2	0.83164
Fall	Perimeter Route	4	14.75	8.92095	60.481	28	9	0.75104

Table 9. Summary Regression Table for Birds of Conservation Concern.

Location	Season	Parameter Estimate	Standard Error	Pr > |t|	R-Square	LCL	UCL
Floodplain Route	Spring	-11.50000	9.71211	0.3580	0.4121	-53.2878	30.2878
Floodplain Route	Fall	-7.70000	6.93217	0.3823	0.3815	-37.5267	22.1267
Perimeter Route	Spring	-7.50000	11.18593	0.5716	0.1835	-55.6292	40.6292
Perimeter Route	Fall	-6.90000	7.82911	0.4711	0.2797	-40.5860	26.7860

Table 10. Summary Regression Table for Birds on the PIF National Watch List.

Location	Season	Parameter Estimate	Standard Error	Pr > |t|	R-Square	LCL	UCL
Floodplain Route	Spring	-2.00000	2.43670	0.4980	0.2520	-12.4843	8.4843
Floodplain Route	Fall	-2.50000	2.81514	0.4682	0.2828	-14.6126	9.6126
Perimeter Route	Spring	-2.70000	2.87315	0.4466	0.3063	-15.0622	9.6622
Perimeter Route	Fall	-1.50000	3.28824	0.6930	0.0942	-15.6481	12.6481